

Spaceport & Technology Committee

Tuesday, October 18, 2005

12:45 PM to 3:45 PM

Reed Hall

MEETING PACKET



The Florida House of Representatives

State Infrastructure Council
Spaceport & Technology Committee

Allan G. Bense Speaker Bob Allen Chair

AGENDA

COMMITTEE ON SPACEPORT & TECHNOLOGY October 18, 2005

- 1. CALL TO ORDER BY CHAIR
- 2 GENERAL OPENING COMMENTS BY THE CHAIR

Welcome and Opening Comments by the Chair.

3. AGENDA ITEMS

Presentations and workshop issues related to capturing space business and strengthening Florida's space sector

Tab

- (1) Dr. Woodrow Whitlow, Jr., Deputy Director
 John F. Kennedy Space Center, NASA
 Federal Developments Pertaining to Space Exploration
- (2) Mr. Bob Rohrlack, Senior Vice President Business Retention and Recruitment, EFI Overview/Economic impact/incentive requirements

Mr. Lee Solid, Space Advisor Economic Development Council Exploration Programs, CEV Overview

Mr. Marshall Heard, Space Advisor Economic Development Council CEV Competitive Environment, Summary

Mr. Frank DiBello, Director Florida Aerospace Finance Corporation Indemnification Developments

Available for questions:

- (3) Ms. Crystal Sircy, Vice President Competitive Programs and Policy, EFI
- 4. Committee members identify issues for future review and consideration.
- 5. Committee discusses future committee meetings; Chairman takes questions
- 6. Closing remarks by Chair.

Dr. Woodrow Whitlow Jr. Deputy Director, NASA's John F. Kennedy Space Center

Dr. Woodrow Whitlow Jr. is Deputy Director of NASA's John F. Kennedy Space Center (KSC), Fla. His duties include assisting the Director in determining and implementing Center policy and in managing and implementing KSC missions and Agency program responsibilities.

Whitlow earned Bachelor of Science, Master of Science, and Doctor of Philosophy degrees in Aeronautics and Astronautics from the Massachusetts Institute of Technology. His disciplines of expertise are computational and theoretical fluid dynamics, aerodynamics, unsteady flows, and aero elasticity. He has written nearly 40 technical papers, most in the areas of unsteady transonic flow and aero elasticity. He began his professional career in 1979 as a Research Scientist at the NASA Langley Research Center (LaRC), Hampton, Va., and achieved the rank of Senior Research Scientist.

After completing the NASA Professional Development Program, Whitlow was selected as assistant head of the LaRC Aeroservoelasticity Branch and later as head of the Unsteady Aerodynamics Branch and the Aero elastic Analysis and Optimization Branch.

Whitlow was selected to the Senior Executive Service as director of the Critical Technologies Division, Office of Aeronautics, at NASA Headquarters in May 1994. He served in that position until January 1995 when he returned to Langley as Deputy Director of the Aeronautics Program Group and later Deputy Director of the Airframe Systems Program Office. In August 1997, Whitlow was appointed Chief of the Structures Division. He led a staff of over 100, conducting research that included analysis, wind tunnel testing, and ground and flight testing of aircraft and space structures.

Whitlow was selected as the Director of Research and Technology at the NASA Glenn Research Center, Brook Park, Ohio, in September 1998. There, he led a team of over 470 researchers in disciplines that included the following: high-temperature materials, aerospace power and onboard propulsion technology, instrumentation and controls, aerospace communications technology, turbo machinery and propulsion systems, and

structures and acoustics. Whitlow joined KSC as Deputy Director in September 2003.

Whitlow has received numerous awards, including U.S. Black Engineer of the Year in Government (1989), NASA Exceptional Service Honor Medal (1992), National Technical Association Technical Achiever of the Year (1996), NASA Equal Opportunity Honor Medal (1996), Massachusetts Institute of Technology Reverend Dr. Martin Luther King Jr. Leadership Award (2000), the (British) Institution of Mechanical Engineers William Sweet Smith Prize (2001), and the Presidential Rank of Meritorious Executive (2003). The American Institute of Aeronautics and Astronautics named Whitlow an associate fellow in 1993.

Whitlow and his wife, Michele, have two daughters, Mary Annessa and Natalie Michele, and two granddaughters, Annessa Michele and Chandler Jalea Michele.





Kennedy Space Center

Budget and Employees

- ❖ 15,000 Employees
- ❖ 2,000 NASA Civil Servants
- * 13,000 Contractors/Tenants
- \$60K Average Annual Salary

State-wide Economic Impact

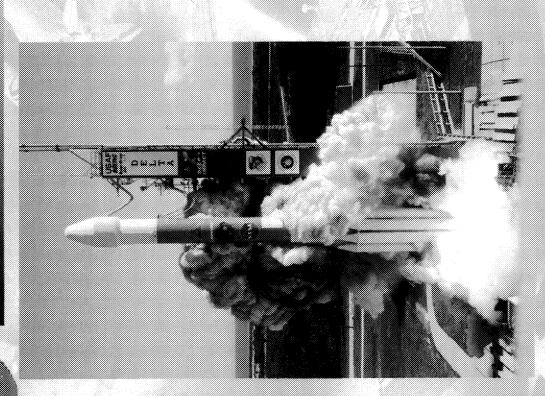
- \$3.3B impact
 33,000 jobs
- ❖ Over \$76M in state and local taxes

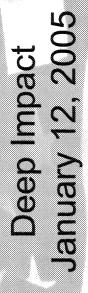


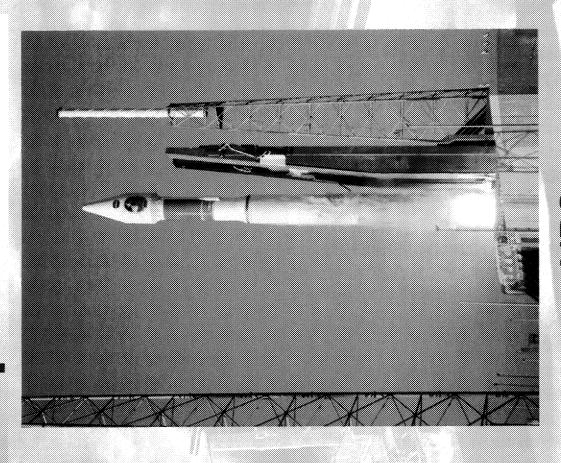
A Bold Vision for Space Exploration

- Develop and fly the Crew Exploration Vehicle no later than 2014 (goal of 2012)
- Complete the International Space Station
- Safely fly the Space Shuttle until 2010
- Return to the Moon no later than 2020
- Extend human presence across the solar system and beyond
- Implement a sustained and affordable human and robotic program
- Develop supporting innovative technologies, knowledge, and infrastructures
- Promote international and commercial participation in exploration

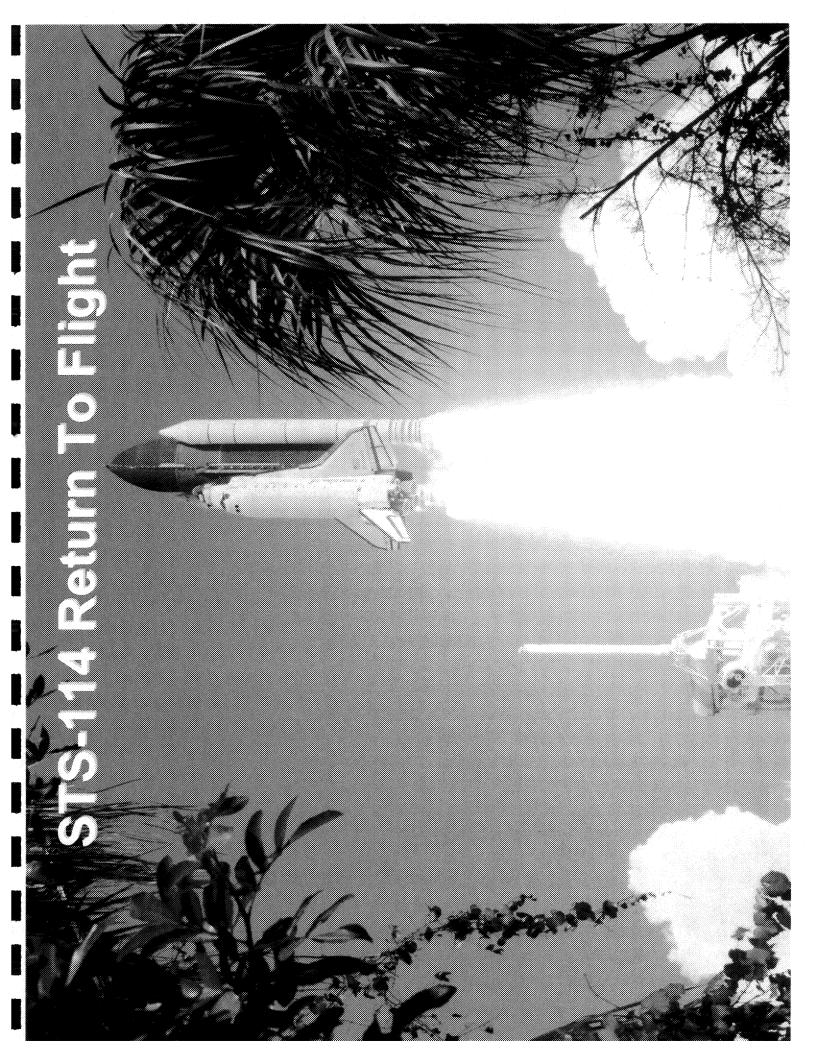
LSP Successfully Launches Robotic Explorers



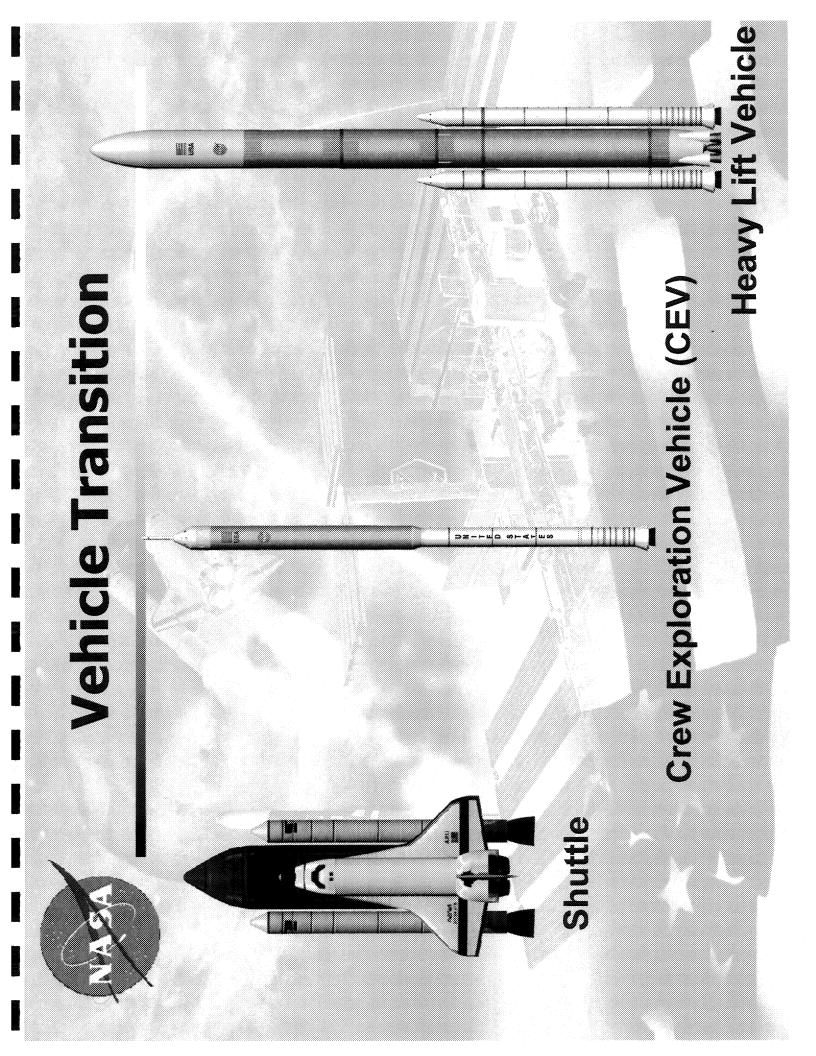




August 12, 2005 MRO









Launch Systems

- EELV fleet for scientific and International Space Station cargo missions in the 5-20 metric ton range to the maximum extent
- New, commercially-developed launch capabilities will be allowed to
- 25 metric ton system derived from the current Shuttle solid rocket booster and liquid propulsion system for exploration launch requirements.
- Capitalizes on human-rated systems and 85% of existing facilities.
- The most straightforward growth path to later exploration super heavy
- Ensures national capability to produce solid propellant fuel at current
- 125 metric ton lift capacity required to minimize on-orbit assembly and complexity - increasing mission success
- Current Shuttle lifts 100 metric tons to orbit on every launch 20 metric tons is payload/cargo; remainder is Shuttle Orbiter.

 - Evolution to exploration heavy lift is straightforward.

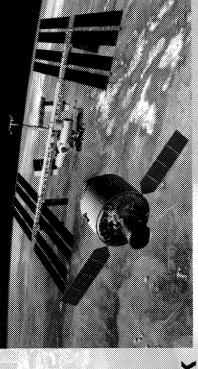


Crew Exploration Vehicle

- A blunt body capsule is the safest, most affordable and fastest approach
- Separate Crew Module and Service Module configuration
- Vehicle designed for lunar missions with 4 crew
- Can accommodate up to 6 crew for Mars and Space Station missions
- and unpressurized cargo to the Space Station if needed System also has the potential to deliver pressurized



- Significant increase in volume
- Reduced development time and risk
- Reduced reentry loads, increased landing stability, and better crew visibility





Potential Commercial Opportunities

- Commercial services for Space Station crew/cargo delivery and return
- Purchase launch / communications services as available
- Innovative programs to encourage entrepreneurs
- needs and safety requirements, they will be purchased instead of government assets Where commercial services meet NASA
- commercial use of Shuttle Landing Facility Request for Information issued for





Gaps in Transition

Last Shuttle flight

Latest date for first CEV Crewed flight **Human Mars Exploration**

Crew Transportation

Cargo Delivery and

Return

ISS Complete

ISS Requirements

Gap

Lunar Cargo Launch Vehicle

A D

Crew Transportation

 $\lambda = 0$

Crew Launch Vehicle

2005

2010

70

2015

2020



Space Shuttle Assets

- The Space Shuttle program has far-reaching effects on the U. S. aerospace industry.
- Occupies 640 facilities, valued at ~ \$5.7 billion
- Has over 900,000 line items associated with equipment, valued at more than \$12 billion
- Employs more than 2,000 civil servants and more than 15,000 prime contractors
- distribution across government, prime contractors, Space Shuttle assets have wide geographic subcontractors, and vendors.



Space Shuttle Program Supplier Distribution



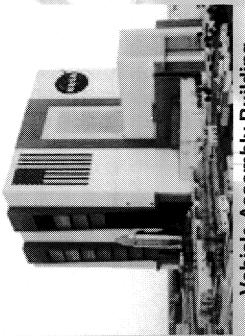


Project Constellation

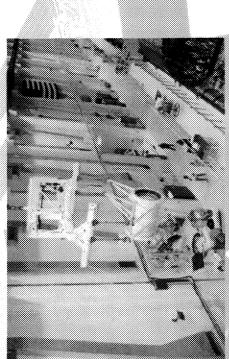
- Current NASA concept is that contractors do final assembly at their facilities and KSC does the integration and testing
- KSC is responsible for all ground operations, including spacecraft recovery
- Considerable efforts are required to modify KSC facilities to be ready for a 2011 launch



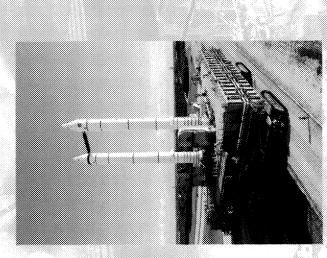
KSC Infrastructure



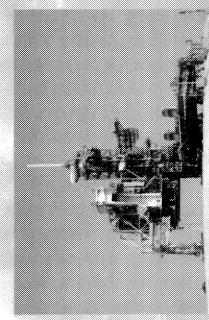
Vehicle Assembly Building



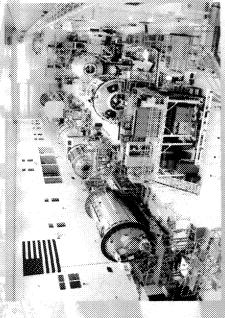
Operations & Checkout Building Highbay



Mobile Launcher Platform and Crawler



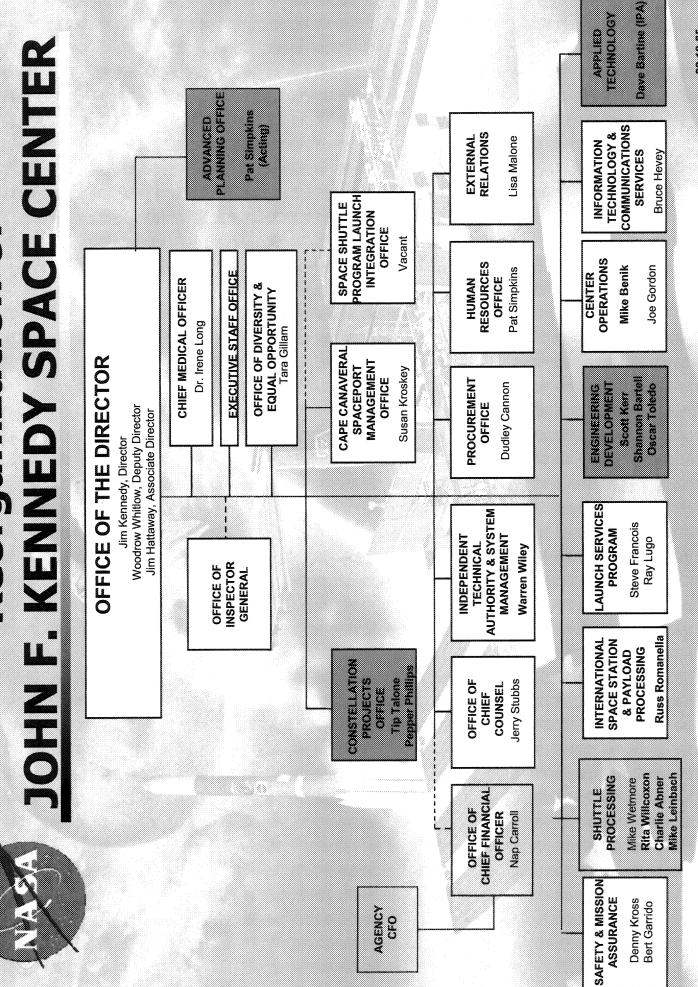
Launch Pad 39



Space Station Processing Facility



Reorganization of





Available KSC Processing Facilities for Project Constellation

- Space Station Processing Facility (portions)
- Operations and Checkout Building
- Multi-Payload Processing Facility
- Vertical Processing Facility (if available)
- Orbiter Processing Facilities (2011, 2012)



NASA Budget

- Fiscal Year 2006 Budget Status
- Continuing Resolution for Fiscal Year 2006 approved through November 18, 2005
- House and Senate Passed the Fiscal Year 2006 Appropriations Act
- Senate's version was \$59M below the President's request
- House's version was \$15M above the President's request
- Fiscal Year 2007 Budget Process
- Integrating the Exploration System Architecture Study results into Center requirements
- Detailed Agency budget expected to be submitted to the Office of Management and Budget on October 21, 2005



KSC Life Sciences Research

- \$17.5 million in Fiscal Year 2005
- \$6 million in Fiscal Year 2006
- Reduced plant research
- Capabilities of all laboratories will be kept in operational conditions
- Maintain the capability to meet and honor all commitments to the State of Florida through FY 2006
- \$6 million for Fiscal Years 2007 and beyond
- Exploring options to acquire additional funds

A Bold Vision for Space Exploration

"KSC is NASA's launch center...and that is KSC's core strength. You will not be unhappy with KSC's role going forward."

-Mike Griffin, NASA Administrator



Robert J. (Bob) Rohrlack, Jr., CED Sr. Vice President, Business Retention and Recruitment Enterprise Florida

Bob Rohrlack serves as Senior Vice President of Business Retention and Recruitment for Enterprise Florida (EFI) – the public-private partnership responsible for leading Florida's statewide economic development efforts. Rohrlack supports EFI's mission to diversify Florida's economy by managing the organization's industry recruitment and retention team, which handles hundreds of new and existing economic development projects, generating thousands of jobs each year.

Rohrlack joined EFI in 2005, and served previously as the Manager of Economic Development in Florida for Progress Energy Service Corporation. In that capacity he oversaw the economic development activities for the company, and coordinated with the local economic development organizations and Enterprise Florida in Progress Energy's 34 state territories.

Prior to that, he was the Governor's appointed Executive Director of the Mississippi Development Authority. While in Mississippi he led the agency during the implementation of the state's largest attraction, the Nissan Automotive Assembly Plant in Canton, and the successful winning of the plant expansion before the facility was completed in addition to other major job attraction and expansion projects, both domestic and international, for the state. Mississippi had two successful special sessions for economic development projects while he was MDA Director.

He also served in the Florida Department of Commerce Bureau of Industry Development overseeing Florida's domestic economic development marketing efforts where he reduced costs and increased job announcements. While there he created "Team Florida" statewide cosponsorship of community marketing programs and a state contact program to involve local communities. Including automotive, he has successfully worked with a variety of industry segments with noted companies as Nordstrom, Grumman Corporation, US Biomaterials, Dollar General and Chase Manhattan Bank.

Rohrlack ran the Gainesville Alliance for Economic Development, a partnership of the Gainesville Area Chamber of Commerce and the Council for Economic Outreach (CEO) and the City's Technology Incubator. CEO became Florida's first Accredited Economic Development Organization under his leadership, recognized by the International Economic Development Council.

At the Greater Tampa Chamber of Commerce, he started the High Technology Council and the Business Retention Program, serving in several capacities and eventually serving as the Senior Vice President for Economic Development.

He was the first Certified Economic Developer with a Master's Degree in Economic Development. He has been recognized as an "Outstanding Young Leader" in 1990 by Site Selection and Industry Development Magazine as an "Up and Comer" by the Tampa Bay Business Journal.

Married with three sons, Bob and his family reside in Orlando, Florida.

L. D. (Lee) Solid Retired Senior Executive, Rockwell's Space Operations

Mr. Solid is a retired Senior Executive of Rockwell's Space Operations in Florida after serving over 39 years in the company's Aerospace Businesses. In 1996, these businesses became part of the Boeing Company. He was responsible for overseeing all Company operations at KSC and CCAS, including Space Shuttle Orbiter launch processing engineering, as well as payloads and flight systems integration. Included was the manufacture, repair and testing of Shuttle hardware at the company's Shuttle Logistics Depot in Cape Canaveral.

Mr. Solid's early Rockwell career was in rocket engine development. He was assigned to Cape Canaveral in 1960 as a field engineer on the Atlas launch vehicle which was being flight tested. He progressed to the Company's Site Manager position and served through the Apollo Program in that role. In 1970, he returned to Rockwell's Rocket dyne Division to direct the Company's Field Engineering Operations at all domestic and foreign locations. With the development of the new Space Shuttle Main Engine and the upcoming Shuttle flights, he returned to Florida in 1980 to manage the Company's activities at the launch site. In 1990, he was selected as Vice President and General Manager over Rockwell's Space Shuttle business at the Kennedy Space Center.

Mr. Solid's many years of contribution to the Space Program has been recognized by numerous NASA and Aerospace awards. Included are 3 Public Service medals, one for Apollo and two for the Space Shuttle. He also received the prestigious Debus Award for Aerospace Excellence, the ASME's Engineering Achievement Award, and the NMA's Gold Knight Award for Management, the JA's Spirit of Achievement Award and a number of others. He has been recognized in the community for service in the fields of education, technology and economic development, and space advocacy. In retirement, he continues to serve on a number of related advisory committees and boards.

Mr. Solid grew up on a farm in western South Dakota. He attended the South Dakota School of Mines and Technology, graduating in 1959 with a BSME. He and his wife, Shirley resides in Merritt Island. They have four children and fourteen grandchildren.

Marshall L. Heard Chairman, Florida Aviation Aerospace Alliance

Mr. Heard joined the Florida Aerospace Alliance in 1999 after a 34-year career with the Boeing Company. Mr. Heard served as both Vice Chairman of the Alliance and Executive Director prior to becoming Chairman.

While with Boeing, Heard divided his efforts between engineering, marketing/business development, and project management. As a Vice President he directed the Tandem Rotors Programs (CH-46 and CH-47), the Comanche Program (RAH-66), and served as the Deputy Program Manager of the V-22 Joint Program Office. He was also Vice President of marketing/business development for Boeing's passenger, cargo, and tanker military aircraft programs and was Boeing Aerospace's senior executive in the Washington, D.C. office.

Mr. Heard has served on numerous Cabinet level panels and commissions (including the Defense Science Board and the Commercial Space Transportation Committee). He has been a frequent witness before both the U.S. Congress and foreign legislative bodies on the subjects of strategic deterrence, battlefield mobility, and the role of technology in national defense policy. In addition to his role with the Florida Aviation Aerospace Alliance he also serves on the boards of Enterprise Florida, Inc., the Florida Aerospace Technician Advisory Council, the National Aerospace Technical Advisory Committee and the Florida Defense Alliance.

A 1960 graduate of the U.S. Naval Academy, Mr. Heard also holds advanced degrees in engineering and business management from the University of Illinois and the Massachusetts Institute of Technology (MIT). He was an Alfred P. Sloan Fellow in residence at MIT in 1975 and 1976.

His professional affiliations, among others, have included the American Defense Preparedness Association, the American Helicopter Society, the Air Force Association, and the National Security Industrial Association.

Heard is married to Annette Snow McAllister of Salt Lake City. They reside on Merritt Island.

Crystal R. Sircy Vice President, Competitive Programs and Policies Enterprise Florida

Crystal R. Sircy serves as Vice President of Competitive Programs and Policies for Enterprise Florida (EFI) – the public-private partnership responsible for leading Florida's statewide economic development efforts. Since joining Enterprise Florida in 1996, she has worked in the organization's Business Retention and Recruitment unit, based in Tallahassee.

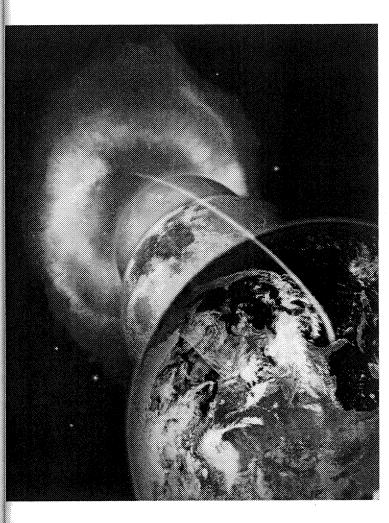
Ms. Sircy supports EFI's mission to diversify Florida's economy by leading the organization's incentives team and managing retention, expansion and recruitment projects that create thousands of higher wage jobs each year. In cooperation with EFI's governmental relations team and local economic development partners, Crystal helps shape the state's business climate by developing and advocating public policy that improves Florida's competitiveness for business recruitment, retention and expansion projects.

Crystal has worked at both the state and local levels of economic development within Florida since 1989, when she began her professional economic development experience with the former Florida Department of Commerce.

After earning a bachelor's degree in Statistics from The University of Florida, she received a Master's in Business Administration at Florida State University.

Crystal resides in rural Madison County with her husband, William, and three children, Will, Grayson and Anna Kate.





NASA's Exploration Program

House Spaceport and Technology Committee Presentation to

October 18, 2005

Presenters

- Enterprise Florida
- Bob Rohrlack, Sr. Vice President
- Crystal Sircy, Vice President
- Casey Barnes, Project Manager
- **Economic Development Commission of** Florida's Space Coast
- Lee Solid, Space Advisor
- Marshall Heard, Space Advisor



diversifying florida's economy

A Bold Vision for Space Exploration



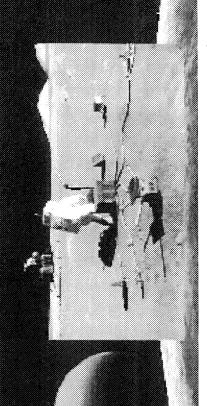
- Safely fly the Space Shuttle until 2010
- Develop and fly the Crew Exploration Vehicle no later than 2014 (goal of 2012)
- Return to the Moon no later than 2020
- Extend human presence across the solar system and beyond
- Implement a sustained and affordable human and
- Develop supporting innovative technologies, knowledge, and infrastructures
- Promote international and commercial participation in exploration



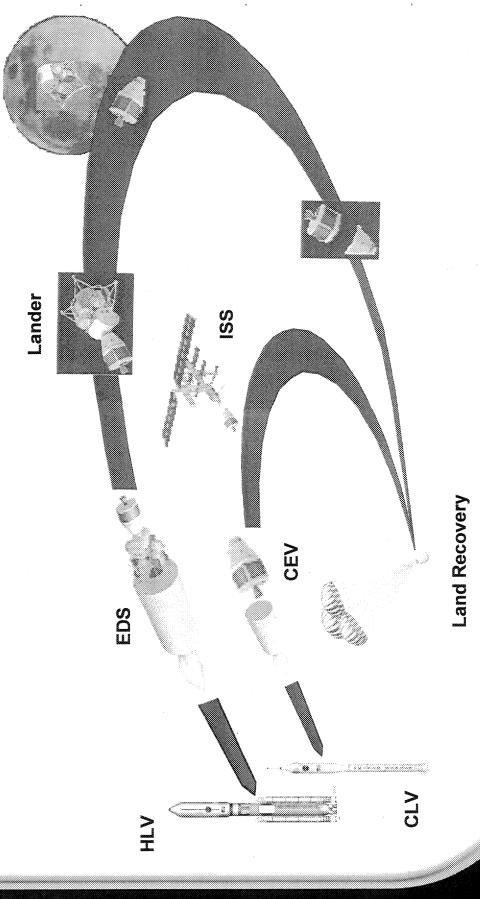
"If is time for America to take the next steps.

Today fanhounce a new plan to explore space and extend a human presence across our solar system. We will begin the offort quickly, using existing programs a personnel. We'll make steady progress – one mission, one voyage, one landing at a time"

President Georgo W. Bush January 14, 2004



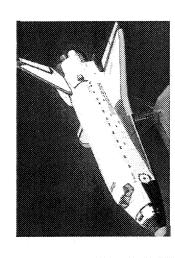
Exploration Program



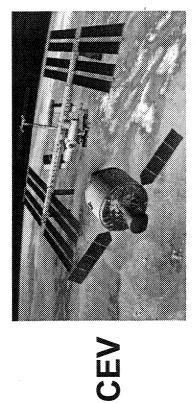
diversifying florida's economy

Enterprise Florida

Human Space Vehicle Transition



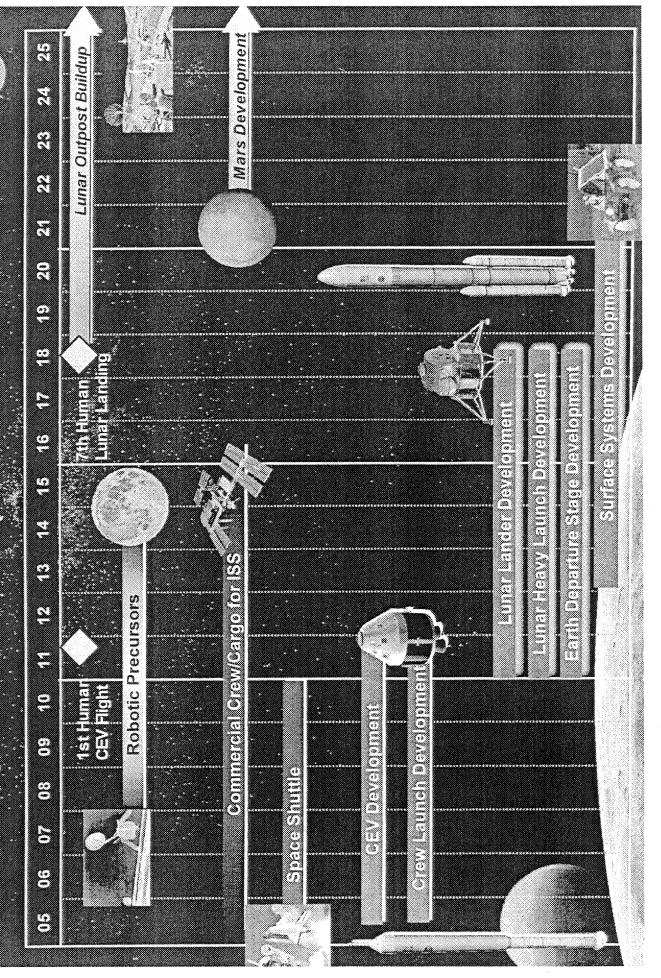
Shuttle Orbiter

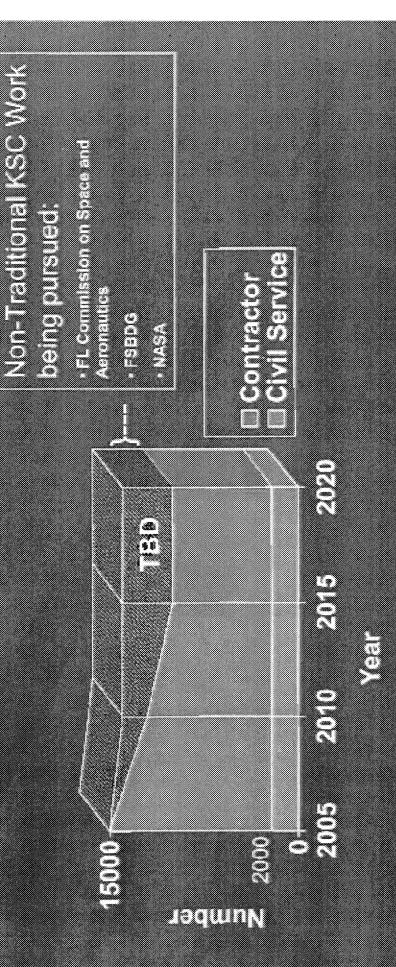


Space Shuttle

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NASA's Exploration Roadmap

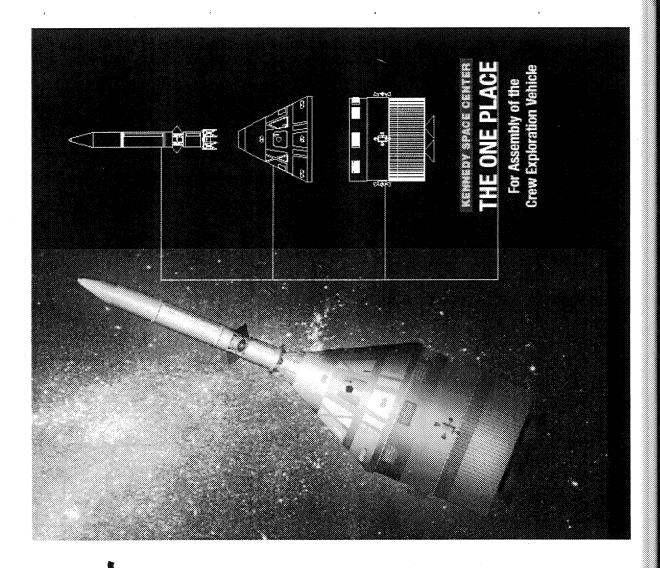




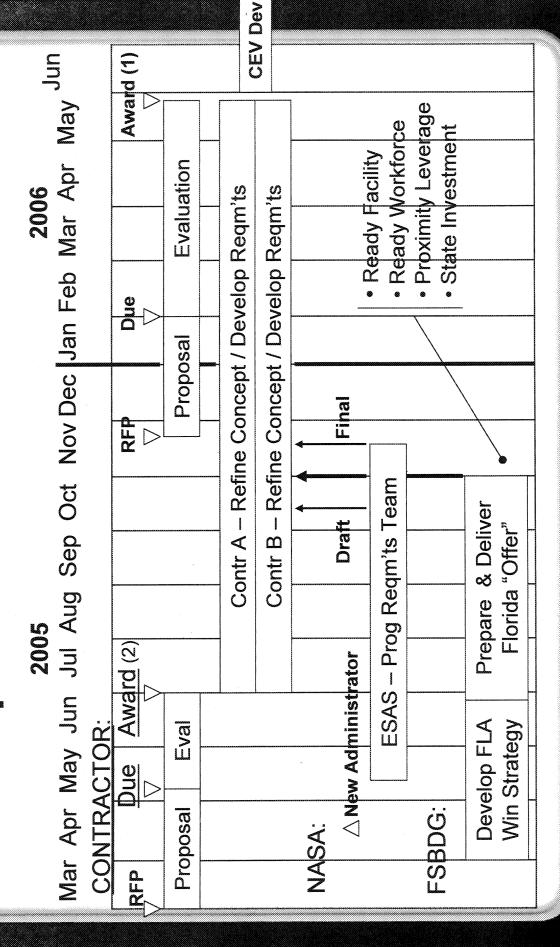
Decilining conficación workfores

Stable civil service workforce

Kennedy Space Center



CEV Acquisition



Why KSC for CEV A&C/O

Key Assets

- **Existing Facilities**
- Availability
- Proven for space H/W Operations
- Can be modified
- Extremely affordable
- State willing to invest
- Supports co-location of engineering & integration
- Proximity to Launch Site
- Minimize transport activities
- Supports build it once, test it once
- Allows for resource sharing
- Facilitates GSE and launch complex mods/integration



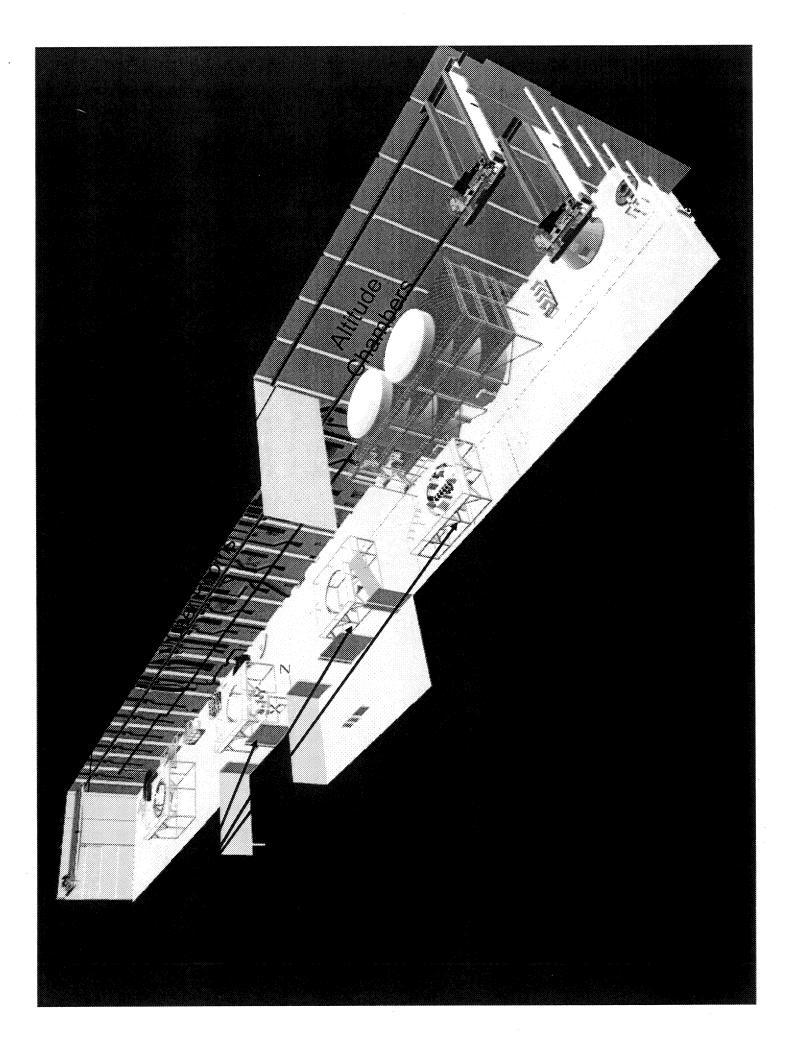
Why KSC for CEV A&C/O Cont'd

Key Assets

- Workforce
- Availability of highly skilled
- Attractive wages
- Proven procedure / processes
- Unparalleled safety record
- Can be shared
- Partnerships
- NASA / Florida / Industry / Academia
- Makes optimum use of resources
- Makes use of Non-Traditional resources
- Risk sharing







Alternative Sites for CEV A&C/O

exas

- Proximity to JSC
- Test Capability
- Design engineers
- Program management
- Low costs
- Houston facility "offer"

- MSFC
- Lead for propulsion
- System engineering & integration role
- Available facility
 - Test capability

Louisiana

- Michoud
- National Center for Manufacturing
- Shuttle tank
- Experienced workforce

California

- . Palmdale
- Infrastructure
- Supplies
- Workforce

Industry-Desired Incentives

- Properly configured facilities
- Assembly & Checkout
 - Testing Čapability
- Trained, available workforce
- Other





Enterprise Florida

Florida's Incentive Tools

Tax Incentives

Qualified Target Industry (QTI) Tax Refunds

after jobs and wage goals are achieved and taxes Refunds sales, ad valorem, corporate income tax paid by the company

Capital Investment Tax Credits

 Annual credit for 20 years against project's corporate income tax liability

NASA project has no tax liability.



Grants

- High Impact Performance Incentive (HIPI) and Quick Action Closing Fund
- capital investment per a performance-based contract Cash grants to company; require job creation and

National Aeronautics and Space Act requires gifts or donations be unconditional



Grants

- **Economic Development Transportation**
- remove project-specific transportation impediments Reimbursement funds to governmental body to
- Quick Response & Incumbent Worker
- Reimbursement funds to provide customized training for new employees and skills upgrade training for existing workers

These incentives are currently under consideration



Enterprise Florida

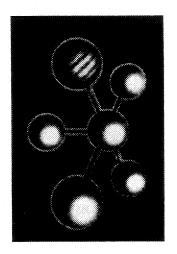


FLORIDA'S KEY INCENTIVES



High Impact Performance Incentive (HIPI)

The High Impact Performance Incentive is a negotiated grant used to attract and grow major high impact facilities in Florida. Grants are provided to applicants pre-approved by the Governor's Office of Tourism, Trade and Economic Development (OTTED). In order to participate in the program, the project must: operate within designated high-impact portions of the following sectors—biomedical technology, financial services, silicon technology, and transportation equipment manufacturing; create at least 100 new full-time equivalent jobs (if a R&D facility, create at least 75 new full-time equivalent jobs) in Florida in a three-year period; and make a cumulative investment in the state of at least \$100 million (if a R&D facility, make a cumulative investment of at least \$75 million) in a three-year period. Once recommended by Enterprise Florida, Inc. (EFI) and approved by OTTED, the high impact business is awarded 50 percent of the eligible grant upon commencement of operations and the balance of the awarded grant once full employment and capital investment goals are met.



Capital Investment Tax Credit (CITC)

The Capital Investment Tax Credit is used to attract and grow capital-intensive industries in Florida. It is an annual credit, provided for up to twenty years, against the corporate income tax. Eligible projects are those in designated high-impact portions of the following sectors: biomedical technology, financial services, information technology, silicon technology, and transportation equipment manufacturing. Projects must also create a minimum of 100 jobs and invest at least \$25 million in eligible capital costs. Eligible capital costs include all expenses incurred in the acquisition, construction, installation, and equipping of a project from the beginning of construction to the commencement of operations. The level of investment and the project's Florida corporate income tax liability for the 20 years following commencement of operations determines the amount of the annual credit.

Qualified Target Industry (QTI) Tax Refund

This program provides an incentive for target industries to expand existing facilities or to locate new facilities in Florida. The program provides tax refunds of \$3,000 per new job created. The incentive is increased to \$6,000 per job if the company locates in a rural county or an Enterprise Zone. Higher awards are available to companies paying very high wages. To qualify for the QTI program, a company must create at least 10 new jobs (or a 10% increase for expanding Florida companies), pay an average of at least 115% of area wages, have a significant positive impact on the community and have local support.





Quick Response Training (QRT)

The Quick Response Training program provides grant funding for customized training to new or expanding businesses. The program is flexible and structured to respond quickly to meet business training objectives. A local training provider – community college, area technical center or university – is selected and available to assist in the application process and program development or delivery. If the business has a training program in place, a state training provider will supervise and manage the training program and serve as the fiscal agent for the grant funds. Reimbursable training expenses include: instructors'/trainers' salaries, curriculum development, textbooks/manuals, and materials/supplies.



FLORIDA'S KEY INCENTIVES





Incumbent Worker Training (IWT)

This program provides employers with funds to train currently employed workers in an effort to keep their firms and workers competitive. The program addresses retraining to meet changing skill requirements caused by new technology, retooling, new product lines and new organizational structuring.

Economic Development Transportation Fund (Road Fund)

This grant program provides up to \$2 million to local governments for the construction or improvement of transportation infrastructure needed to accommodate new or expanding industry.



Specialized Incentives

Your project may qualify for opportunities such as urban or rural tax credits, and incentives for brownfields and Enterprise Zones.

Expedited Permitting Assistance

State and local permit streamlining procedures are available to assist businesses in obtaining necessary permits and approvals in a quick, efficient and predictable manner.